

Do Now:

A. Find the axis of symmetry of the function $y = 2x^2 - 8$ algebraically.

$x = \frac{-b}{2a}$ $x = \frac{-(0)}{2(2)}$ $x = \frac{0}{4}$ $x = 0$

QUIZ

B. Find the vertex of the function $y = 2x^2 - 8$ algebraically.

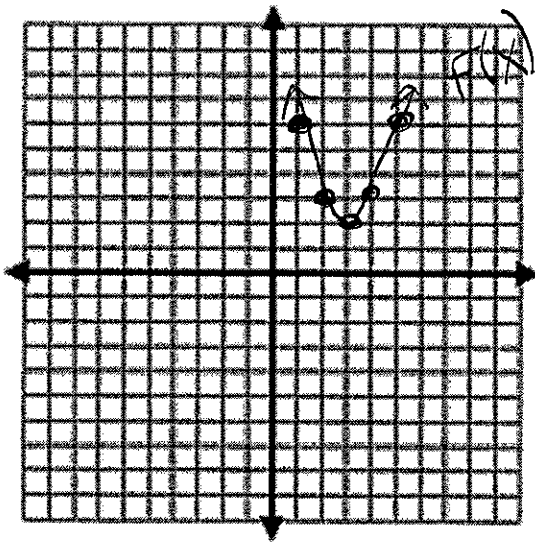
$y = 2x^2 - 8$
 $y = 2(0)^2 - 8$
 $y = -8$
 (0, -8)

Notice: when the b-value is zero, the T.P. is (0, c-value)

AIM: GRAPHING PARABOLAS IN VERTEX FORM

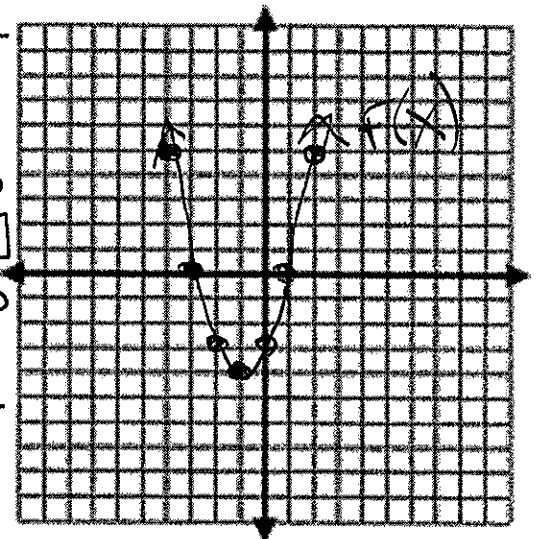
1. Graph $f(x) = (x-3)^2 + 2$ Vertex: (3, 2)

x	y
0	5
1	3
2	2
3	2
4	3
5	5



2. Graph $f(x) = (x+1)^2 - 4$ Vertex: (-1, -4)

x	y
-4	5
-3	0
-2	-3
-1	-4
0	-3
1	0
2	5



3. Graph $f(x) = 2(x-2)^2 - 1$

a) Vertex: (2, -1)

b) Describe the transformation: gets narrower, translates right two units & down one unit.

4. Graph $f(x) = -(x+3)^2 - 2$

a) Vertex: (-3, -2)

b) Describe the transformation: reflects over x-axis, translates right two units & down two units

STANDARD FORM:

$y = ax^2 + bx + c$

VERTEX FORM:

$y = (x-h)^2 + k$

T.P. (h, k)

Directions: Without graphing, state the vertex for each of the following quadratic equations:

5. $y = (x-5)^2 + 3$
 $(5, 3)$

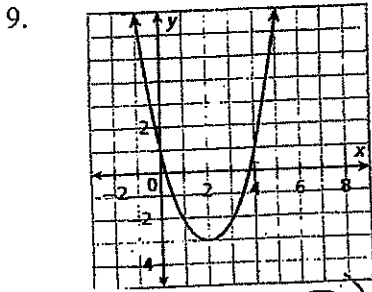
6. $y = (x-7)^2$
 $(7, 0)$

Directions: Write a quadratic equation, in vertex form, whose graph will have the given turning point:

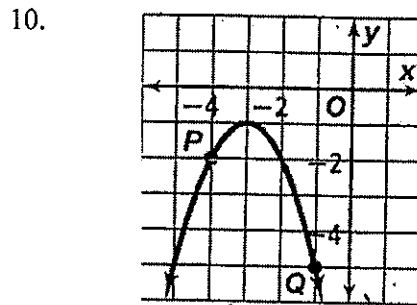
7. $(1, -4)$
 $y = (x-1)^2 - 4$

8. $(-3, 5)$
 $y = (x+3)^2 + 5$

Directions: Write a rule (in vertex form) for the quadratic function whose graph is show below:



T.P. $(2, -3)$
 $y = (x-2)^2 - 3$



T.P. $(-3, -1)$
 $y = -(x+3)^2 - 1$

PRACTICE PROBLEMS:

Directions: Without graphing, state the vertex for each of the following quadratic equations:

11. $f(x) = x^2 - 6$
 $(0, -6)$

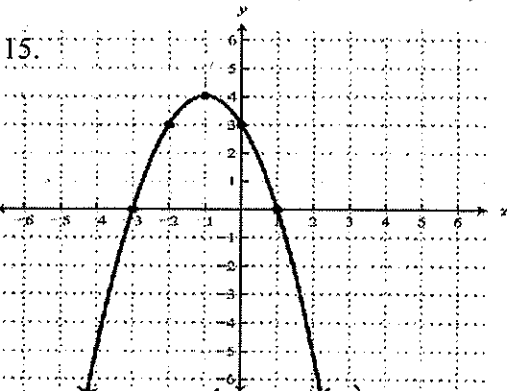
12. $y = 3(x+2)^2 + 4$
 $(-2, 4)$

Directions: Write a quadratic equation, in vertex, form whose graph will have the given turning point:

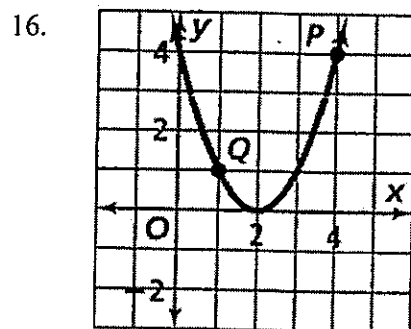
13. $(-2, 5)$
 $y = (x+2)^2 + 5$

14. $(6, -8)$
 $y = (x-6)^2 - 8$

Directions: Write a rule (in vertex form) for the quadratic function whose graph is show below:



vertex $(-1, 4)$
 $y = -(x+1)^2 + 4$



vertex $(2, 0)$
 $y = (x-2)^2$